What is claimed is:

1. A polishing apparatus comprising:

a polishing table having a polishing surface;

a top ring for holding a workpiece to be polished and pressing the workpiece against said polishing surface on said polishing table;

a film thickness measuring device embedded in said polishing table, said film thickness measuring device including:

a light source for applying light having a predetermined wavelength to a surface of the workpiece;

a spectroscope for separating light reflected from the surface of the workpiece; and

a charge coupled device array for capturing light separated by said spectroscope; and

a controller operable to analyze information captured by said charge coupled device array over an entire surface of the workpiece to obtain a film thickness at a desired point on the surface of the workpiece.

2. The polishing apparatus according to claim 1, wherein said charge coupled device array captures light having a single wavelength.

3. The polishing apparatus according to claim 1, wherein said charge coupled device array captures light having a plurality of wavelengths.

4. The polishing apparatus according to claim 1, wherein said film thickness measuring device has a radial length larger than a radius of the workpiece.

5. The polishing apparatus according to claim 1, wherein said controller filters a wavelength which is influenced by a polishing liquid used for polishing.

6. An electrolytic polishing apparatus comprising:

electrodes including a processing electrode, which is brought into contact with or

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close to a workpiece to be polished, and a feeding electrode to supply electric power to the workpiece;

a film thickness measuring device disposed adjacent to at least one of said electrodes, said film thickness measuring device including:

a light source for applying light having a predetermined wavelength to a surface of the workpiece;

a spectroscope for separating light reflected from the surface of the workpiece; and

a charge coupled device array for capturing light separated by said spectroscope; and

a controller operable to analyze information captured by said charge coupled device array over an entire surface of the workpiece to obtain a film thickness at a desired point on the surface of the workpiece.

7. The electrolytic polishing apparatus according to claim 6, wherein said charge coupled device array captures light having a single wavelength.

8. The electrolytic polishing apparatus according to claim 6, wherein said charge coupled device array captures light having a plurality of wavelengths.

9. The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device has a radial length larger than a radius of the workpiece.

10. The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device is disposed between said electrodes.

11. The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device is disposed in parallel with said electrodes.

12. A polishing method comprising:
bringing a workpiece into sliding contact with a polishing surface;
pressing the workpiece against the polishing surface while supplying a polishing

liquid to the polishing surface;

applying light to the workpiece over an entire surface of the workpiece; and

capturing light reflected from the workpiece over the entire surface of the workpiece.

13. The polishing method according to claim 12, further comprising:

specifying a specific point on a surface of the workpiece based on at least one of a notch and an orientation flat formed in the workpiece; and

obtaining a film thickness at the specific point from the light captured over the entire surface of the workpiece.

14. The polishing method according to claim 13, further comprising:

controlling a pressure applied to the workpiece according to the film thickness.

15. The polishing method according to claim 13, further comprising:

controlling an amount of the polishing liquid according to the film thickness.